GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION PLAN

1. CLIENT/SITE/PROJECT INFORMATION

Client: Wedron Silica Co. and Lockheed Martin Corporation		
Site Address: Wedron, LaSalle County, Illinois 66507		
Site Description, Work Environment: Surface sand mine property and public access properties.		
Job/Project #: 20.0151178.51	Estimated Start Date: November 1, 2013	Estimated Finish Date: February 1, 2014

2. EMERGENCY INFORMATION

Hospital Name & Address: OSF St. Elizabeth Medical Center - 1100 E Norris Drive, Ottawa, Il. 61350		Hospital #: 815-433-3100
Directions and Street Map of Route to Nearest Hospital Attached: ☒ Yes (required)		
Fire #: 911	Ambulance #: 911	Police #: 911
Other Emergency Contact(s): Mike Melton - Wedron Silica		Phone #'s: 1-815-830-2920
Location of Nearest Phone: GZA personnel cell phones on the site.		
Site Specific Emergency Preparedness/Response Procedures/Concerns:		
IMPORTANT: All EHS Events (incidents, first aid, near misses, unsafe acts/conditions, fires, chemical spills, property damage, and extraordinary safe behaviors) must be reported within 24 hours to the EHS Event Reporting Portal at www.kelleronline.com/portal. Username gempl1; Password ge5607.		

3. SUB-SURFACE WORK, UNDERGROUND UTILITY LOCATION

Will subsurface explorations be conducted as part of this work? ☒ Yes ☐ No

Site property ownership where underground explorations will be conducted on:	Public Access Property ☒ Yes ☐ No Private Property ☒ Yes ☐ No
Have Necessary Underground Utility Notifications For Subsurface Work Been Made?	☐ Yes ☒ Yet to be conducted

Specify Clearance Date & Time, Dig Safe Clearance I.D. #, And Other Relevant Information: TBD
Clearance Confirmation Nos. _____

A private utility locating company will also be employed to mark utilities on private property.

IMPORTANT! For subsurface work, prior to the initiation of ground penetrating activities, GZA personnel to assess whether the underground utility clearance (UUC) process has been completed in an manner that appears acceptable, based on participation/ confirmation by other responsible parties (utility companies, subcontractor, client, owner, etc.), for the following:

Electric:	☐ Yes	☐ No	☐ NA	☐ Other_____
Fuel (gas, petroleum, steam):	☐ Yes	☐ No	☐ NA	☐ Other_____
Communication:	☐ Yes	☐ No	☐ NA	☐ Other_____
Water:	☐ Yes	☐ No	☐ NA	☐ Other_____
Sewer:	☐ Yes	☐ No	☐ NA	☐ Other_____
Other:_____	☐ Yes	☐ No	☐ NA	☐ Other_____

Comments:

4. SCOPE OF WORK

Any OSHA PERMIT-REQUIRED CONFINED SPACE entry? ☐ **YES** ☒ **NO** If yes, use Site Specific H&S Plan/Confined Space Entry Permit for that portion of the work	**Any INDOOR fieldwork?** ☒ **YES** ☐ **NO** If yes, explain: Inside work is limited to measuring water levels at a location inside the Fox River pump house south of Highway 21.

4. SCOPE OF WORK	
General project description, and phase(s) or work to which this H&S Plan applies.	GZA will perform monitoring, testing, analysis and reporting as set forth in the Workplan submitted pursuant to AOC RCRA-05-2013-0011.
Specific Tasks Performed by GZA:	GZA will oversee the drilling of soil borings and collection of soil samples and will field-screen soil samples. GZA will also oversee the installation of piezometers and measure water levels from various locations throughout the Wedron community.
Concurrent Tasks to be Performed by GZA Subcontractors (List Subcontractors by Name):	Subcontractors will drill soil borings and construct piezometers. Subcontractors to be determined.
Concurrent Tasks to be Performed by Others:	N/A
IMPORTANT! Subcontractors may use GZA's plan for general informational purposes only. Each subcontractor is responsible for determining the adequacy and applicability of the information herein to its own activities on site. Each subcontractor engaged by GZA is responsible for all matters relating to the H&S of its personnel and equipment in performance of its work, as well as obligations for compliance with H&S regulations applicable to its work. GZA subcontractors are subject to GZA's review, recommendations, and contractual requirements pertaining to H&S.	

5. DOCUMENTATION TO BE COMPLETED

- **Site Health and Safety Briefing/Site Safety Orientation Record** (Attachment A) must be completed prior to the initiation of on-site activities and at least once per week thereafter until the completion of GZA on-site activities. For some projects, daily safety briefings may be appropriate.
- **Site Inspection Log** (Attachment B) must be completed at the initiation of on-site activities and at least once per week thereafter until the completion of GZA on-site activities.
- **Map to Hospital** (Attachment C) must be prepared and included with each Health and Safety Plan.
- **Detailed Task Hazard Analysis** (Attachment D) attach for each task covered under this Health and Safety Plan

6. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/ SAFETY MEASURES (Based on Hazard Assessment, Section 11)

For the hazards identified by the Hazard Assessment checklist, describe the specific nature of that hazard as it relates to your jobsite, and describe the safety measures to be implemented for worker protection. Use brief abstract statements or more detailed narrative as may be appropriate.

ON-SITE HAZARDS:	SAFETY MEASURES:
Benzene, ethylbenzene, xylene, chloroform were reported in soil samples, and benzene was reported in groundwater above USEPA MCLs. Investigating for the presence of petroleum constituents and other VOCs in soil and groundwater samples to be collected.	Level D PPE to modified Level D, based on potential for skin contact with contaminated soil and/or groundwater. Wash hands and face thoroughly after de-gloving. Level C if benzene over 0.5 ppm in breathing zone, as determined with Draeger tubes.
Silica mine property hazards	GZA staff will have MSHA part 46 training completed and will complete site-specific health and safety training prior to beginning work on mine property.
Elevated noise levels during drilling operations	GZA staff will wear hearing protection during drilling operations.
Heavy equipment operation	Be aware of surroundings and activities of those in vicinity; make eye contact with equipment operators.
Underground utilities	Check for utility clearance, double check drilling location for "unmarked" utilities prior to breaking ground.
Road/traffic hazards	Wear traffic vest and use hazard blinkers when parked off the pavement near roads during the measurement of water levels. Use "men working" sign when collecting water levels from the Highway 21 Bridge and drilling in road right-of-ways. Abide by signage permit requirements when working in township and county road tights-of-way.

6. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/ SAFETY MEASURES
(Based on Hazard Assessment, Section 11)

For the hazards identified by the Hazard Assessment checklist, describe the specific nature of that hazard as it relates to your jobsite, and describe the safety measures to be implemented for worker protection. Use brief abstract statements or more detailed narrative as may be appropriate.

ON-SITE HAZARDS:	SAFETY MEASURES:
Overhead power lines	Be aware of location of overhead wires in relation of drill rig mast, watch drill rig mast for insecure items. Hardhats required on mine property and around drilling rig.
Outdoor field hazards, biting insects, poisonous plants	Wear proper clothing, use insect repellent, identify poisonous plants and utilize Technu® if skin exposed to poisonous plants.

7. HEALTH AND SAFETY EQUIPMENT AND CONTROLS

AIR MONITORING INSTRUMENTS (ensure instruments are calibrated)

- ☒ PID Type: Lamp Energy: 10.6 eV
- ☐ FID Type:
- ☐ Carbon Monoxide Meter
- ☐ Hydrogen Sulfide Meter
- ☐ O_2/LEL Meter
- ☐ Particulate (Dust) Meter
- ☒ Calibration Gas Type: Isobutylene
- ☐ Others:

Discuss/Clarify, as Appropriate:

OTHER H&S EQUIPMENT & GEAR

- ☒ Fire Extinguisher
- ☒ Caution Tape
- ☒ Traffic Cones or Stanchions
- ☐ Warning Signs or Placards
- ☒ Decon Buckets, Brushes, etc.
- ☐ Portable Ground Fault Interrupter (GFI)
- ☐ Lockout/Tagout Equipment
- ☐ Ventilation Equipment
- ☒ Others: "Men Working" Road Signs for Roadside work, First Aid Kit

Discuss/Clarify, as Appropriate:

PERSONAL PROTECTIVE EQUIPMENT

- ☒ Respirator Type: 1/2 face APR
- ☒ Resp-Cartridge Type: Defender VOC
- ☒ Hardhat
- ☒ Outer Gloves Type: Nitrile
- ☐ Inner Gloves Type:
- ☒ Steel-toed boots/shoes
- ☒ Coveralls Type: Tyvek®
- ☐ Outer Boots Type:
- ☒ Eye Protection with side shields
- ☐ Face Shield
- ☒ Traffic Vest
- ☐ Personal Flotation Device (PFD)
- ☐ Fire Retardant Clothing
- ☐ EH (Electrical Hazard) Rated Boots, Gloves, etc.
- ☒ Noise/Hearing Protection
- ☐ Others:

Discuss/Clarify, as Appropriate:

8. AIR MONITORING ACTION LEVELS **Is air monitoring to be performed for this project? Yes ☒ No ☐**

Make sure air monitoring instruments are in working order and have been calibrated prior to use. Depending on project-specific requirements, periodic field calibration checks may be necessary during the day of instrument use.

A. ACTION LEVELS FOR OXYGEN DEFICIENCY AND EXPLOSIVE ATMOSPHERIC HAZARDS (Action levels apply to occupied work space in general work area.)

☐ **Applicable, See Below.** ☒ **Not Applicable**

Parameter	Response Actions for Elevated Airborne Hazards
Oxygen	At 19.5% or below, exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities Verify presence of adequate oxygen (approx. 12% or more) before taking readings with LEL meter. If oxygen levels are below 12%, LEL meter readings are not valid.
LEL	Less than 10% LEL - Continue working, continue to monitor LEL levels Greater than or Equal to 10% LEL - Discontinue work operation and immediately withdraw from area. Resume work activities ONLY after LEL readings have been reduced to less than 10% through passive dissipation, or through active vapor control measures.

B. ACTION LEVELS FOR INHALATION OF TOXIC/HAZARDOUS SUBSTANCES (Action levels are for sustained breathing zone concentrations.)

☒ **Applicable, See Below.** ☐ **Not Applicable**

Air Quality Parameters (Check all that apply)	**Remain in Level D or Modified D**	**Response Actions for Elevated Airborne Hazards**
☒ VOCs	0 to 0.5 ppm	0.5 ppm to 1.0 ppm: Proceed to Level C, or Ventilate, or Discontinue Activities **Note: If measured in the breathing zone, use Draeger tube for benzene, to evaluate consistent airborne benzene concentrations.** > 1.0 ppm Discontinue Activities
☐ Carbon Monoxide	0 to 35 ppm	At greater than 35 ppm, exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities.
☐ Hydrogen Sulfide	0 to 10 ppm	At greater than 10 ppm, exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities
☐ Dust	0 to mg/m^3	
☒ Benzene/VOC IH Monitoring	N/A	On occasions, GZA staff may wear diffusion badge monitors during work with contaminated soil for measuring VOCs and benzene breathing zone concentrations.
☐		

C. SPECIAL INSTRUCTIONS/COMMENTS REGARDING AIR MONITORING (IF APPLICABLE)

GZA staff may at times wear diffusion badge monitors during work with contaminated soil for measuring VOCs and benzene breathing zone concentrations.

9. H&S TRAINING/QUALIFICATIONS FOR FIELD PERSONNEL

☒ Project-Specific H&S Orientation Required for All Projects, All Field Staff	☐ Fall Protection Training
☒ OSHA 40 Hr. Hazwoper/8 Hr. Refreshers	☐ Trenching & Excavation
☐ Hazard Communication (for project-specific chemical products)	Others: ☐
☒ First Aid/CPR (at least one individual on site)	☐
☐ General Construction Safety Training	☐
☐ Lockout/Tagout Training	☐
☐ Electrical Safety Training	☐
☐ Bloodborne Pathogen Training	☐

Discuss/Clarify, as needed:

10. PROJECT PERSONNEL - ROLES AND RESPONSIBILITIES

GZA ON-SITE PERSONNEL:

Name	Project Title/Assigned Role	Telephone Numbers
Christopher Ainsworth/David Bauer	Site Supervisor	work: 262-754-2562/262-754-2580 cell: 262-424-9901/262-951-8414
Christopher Ainsworth/David Bauer	Site Safety Officer	work: same cell:
Christopher Ainsworth/David Bauer	First Aid Personnel	work: same cell:

Site Supervisors and Project Managers (SS/PM): Responsibility for compliance with GZA Health and Safety programs, policies, procedures and applicable laws and regulations is shared by all GZA management and supervisory personnel. This includes the need for effective oversight and supervision of project staff necessary to control the Health and Safety aspects of GZA on-site activities.
Site Safety Officer (SSO): The SSO is responsible for implementation of the Site Specific Health and Safety Plan.
First Aid Personnel: At least one individual designated by GZA who has current training and certification in basic first aid and cardiopulmonary resuscitation (CPR) must be present during on-site activities involving multiple GZA personnel.

OTHER PROJECT PERSONNEL:

Name	Project Title/Assigned Role	Telephone Numbers
Mark Krumenacher, PG	Principal-in-Charge	Work: 262-754-2565 Cell: 262-424-2046
Bernard Fenelon, PG	Project Manager	Work: 262-754-2567 Cell: 262-424-2045
Michael J. McCoy, CIH, CSP	Health and Safety Coordinator (HSC)	Work: 262-754-2586 Cell: 262-424-2041
Richard Ecord, CIH, CSP	GZA Director of Health and Safety	Work: 781-278-3809 Cell: 404-234-2834

Principal-in-Charge: Responsible of overall project oversight, including responsibility for Health and Safety.
Project Manager: Responsible for day-to-day project management, including Health and Safety.
Health and Safety Coordinator: General Health and Safety guidance and assistance.
Director of Health and Safety: H &S technical and regulatory guidance, assistance regarding GZA H&S policies and procedures.

11. HAZARD ASSESSMENT (CHECK ALL THAT APPLY)

A. GENERAL FIELDWORK HAZARDS

☐ Confined Space Entry (STOP – USE Confined Space Entry HASP Template)	☒ Presence of pedestrians or the general public
☐ Abandoned or vacant building/Enclosed Spaces	☒ Overhead hazards (falling objects, overhead power lines)
☒ Significant Slip/Trip/Fall hazards	☐ Portable hand tools or power tools
☐ Unsanitary/Infectious hazards	☐ Significant ergonomic hazards
☒ Poisonous Plants	☐ Electrical hazards (equipment 120 volts or greater, work inside electrical panels or maintenance of electrical equipment)
☒ Biting/Stinging Insects	☐ Other stored energy hazards (equipment with high pressure or stored chemicals
☒ Feral Animal hazards	☐ Fire and/or explosion hazard
☐ Water/Wetlands Hazards	☒ Elevated noise levels
☐ Remote Locations/Navigation/Orientation hazards	☐ Excavations, test pits
☐ Rough Terrain	☐ Explosives or Unexploded Ordinance/MEC
☒ Weather-related hazards	☒ Long distance or overnight travel
☒ Motor vehicle operation hazards	☐ Personal security or high crime area hazards
☒ Heavy equipment hazards	☐ Working alone
☐ Structural hazards (unsafe floors/stairways/roof)	☐ Ionizing radiation or non-ionizing radiation
☐ Demolition/Renovation	☒ Chemical/Toxicity/Irritant Hazards (See Part B for details)

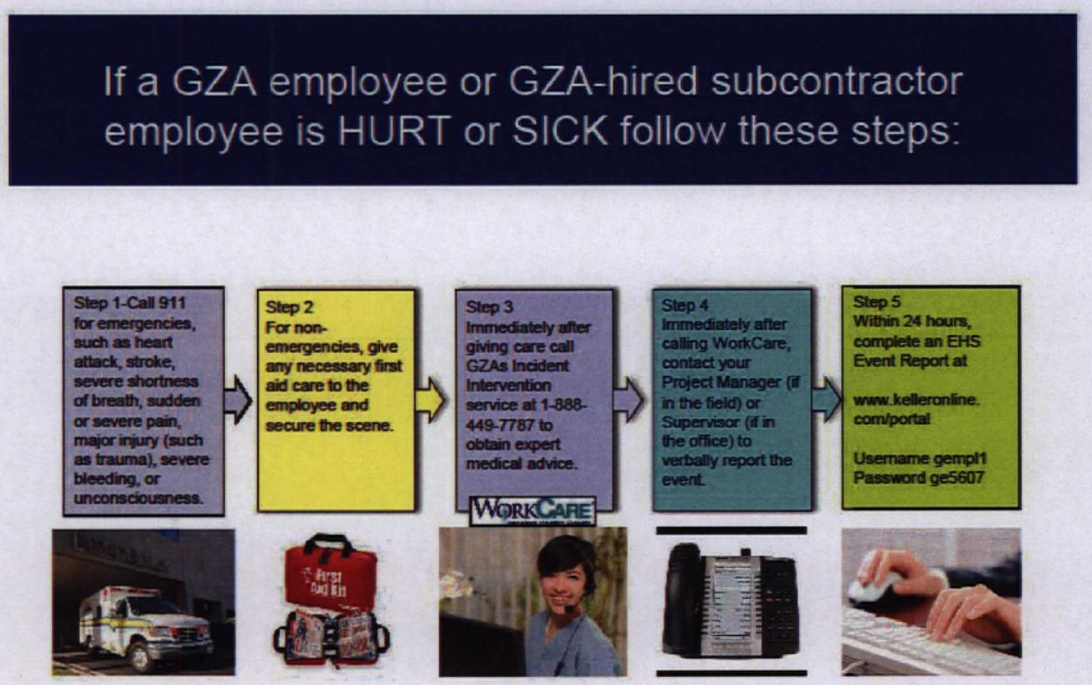
B. CHEMICAL/EXPOSURE HAZARDS

☐ No chemical hazards anticipated	☐ Methane
☐ Hydrogen Sulfide (H_2S)	☐ Chemicals Subject to OSHA Hazard Communication (for commercial chemical products, attach MSDSs if applicable)
☐ Cyanides, Hydrogen Cyanide (HCN)	☐ Containerized Waste, Chemicals in Piping & Process Equipment
☐ Carbon Monoxide	☐ Emissions from Gasoline-, Diesel-, Propane-fired Engine, Heater, Similar Equipment
☐ Herbicides, Pesticide, Fungicide, Animal Poisons	☐ General Work Site Airborne Dust Hazards
☐ Metals, Metal Compounds	☒ Volatile Organic Compounds (VOCs), BTEX
☐ Corrosives, Acids, Caustics, Strong Irritants	☐ Chlorinated Organic Compounds
☐ Polychlorinated Biphenyls (PCBs)	☒ Fuel Oil, Gasoline, Petroleum Products, Waste Oil
☐ Polycyclic Aromatic Hydrocarbons (PAHs)	☐ Asbestos
☐ Compressed Gases	☐ Oxygen Deficiency, Asphyxiation Hazards
☐ Flammable/Combustible Liquids	☐ Other: Arsenic in groundwater
☐ Radiation Hazards (radioactive sealed/open source, x-rays, ultra violet, infrared, radio-frequency, etc.)	

12. PLAN AKNOWLEDGEMENT AND APPROVALS – The following individuals indicate their acknowledgement and/or approval of the contents of this Site Specific H&S Plan based on their understanding of project work activities, associated hazards and the appropriateness of health and safety measures to be implemented.

	Signature	Date
Prepared by:	Michael J. McCoy	September 20, 2013
Project Manager:		September 24, 2013
EHS Approval:	Michael J. McCoy	September 20, 2013
PIC:		October 14, 2013

Attachments:
Attachment A Health and Safety Briefing/Site Orientation Record
Attachment B Site Inspection Log



ATTACHMENT A
HEALTH AND SAFETY ORIENTATION/BRIEFING RECORD

CHECK ONE: _____ **Initial H&S Orientation** _____**Periodic "Toolbox" Safety Meeting**

Project Site/Location Wedron Community Groundwater, Wedron, Illinois

Date_____ **Time**_____ **Job No.** 20.0151178.51

PM Bernard G. Fenelon **PIC** Mark J. Krumenacher

The undersigned have attended a Health and Safety briefing, consisting of a review of the provisions of the Site Specific H&S Plan, and/or appropriate prior H&S events or concerns, and/or review safety measures for the project.

SUMMARY OF HEALTH AND SAFETY TOPICS COVERED
• Have underground utilities been cleared?
• Mine property hazards - complete site-specific health and safety training
• Discuss construction hazards associated with work, noise, physical hazards, PPE
• Traffic and road hazards expected with work and we have controls/PPE
• VOCs, petroleum hydrocarbons in soil and groundwater
• Working near overhead power lines today?
• Identify any weather or field hazards for today?
• Identify locations for hand washing, toilets, and breaks.
• Any safety/health concerns or hazards not discussed?

NAME (printed)	SIGNATURE	COMPANY

Conducted by: _____ Date:_____

ATTACHMENT B
SITE INSPECTION LOG

PROJECT NAME: Wedron Community Groundwater	**LOCATION:**
PROJECT NUMBER: 20.0151178.51	**DATE:**
PROJECT MANAGER: Bernard G. Fenelon	**COMPLETED BY:**
SITE DESCRIPTION AND NATURE OF WORK:	

HAZARD COMMUNICATION
[ ]Chemical hazards identified
[ ]All containers properly labeled
[ ]MSDS/workplace notebook on site
[ ]Site safety briefing completed and documented

ACCIDENTS/EMERGENCY INFO
[ ]First aid personnel identified
[ ]Hospital location identified
[ ]Police/Fire/Ambulance phone numbers available
[ ]Incident investigation forms available
[ ]Fire extinguisher present

SANITATION
[ ]Washing facilities available
[ ]Toilet facilities available
[ ]Approved trash receptacle available
[ ]Water/refreshments available

STORAGE
[ ]Tools/Drill tooling/supplies safely stacked to prevent rolling or collapse
[ ]Work areas and passage ways kept clear

HOUSEKEEPING
[ ]Work areas clean and orderly
[ ]Storage areas clean and orderly
[ ]Combustible scrap/debris removed regularly
[ ]Waste containers of flammable or toxic materials covered

OVERHEAD HAZARDS
[ ]15ft minimum clearance maintained
[ ]All sources of falling objects/swinging loads/ rotating equipment identified
[ ]Barriers or other methods in place to prevent injury due to overhead hazards

POSTING
[ ]Emergency phone/contact info posted
[ ]OSHA poster displayed

UNDERGROUND HAZARDS
[ ]All underground hazards identified and communicated to workers on site
[ ]Utility/Dig-Safe clearance confirmed
[ ]Clearance dates: _____
[ ]Clearance ID#: _____

EXCAVATIONS and TRENCHES
[ ]All personnel and storage at least 2^{ft} from top edge of excavation
[ ]Ladder in place
[ ]Guarding/barriers in place

VEHICULAR TRAFFIC
[ ]All vehicular traffic routes which could impact worker safety identified and communicated
[ ]Barriers or other methods established to prevent injury from moving vehicles

PEDESTRIAN TRAFFIC/SITE CONTROL
[ ]All walkways which could be impacted by site activities identified and communicated
[ ]Barriers or other methods established to prevent pedestrian injury from site activities

ENVIRONMENTAL HAZARDS
[ ]Poisonous plants/stinging or biting insects/vermin/sewage/etc. identified and communicated

COMMENTS/OTHER HAZARDS_____
_____
_____
_____
_____
_____
_____

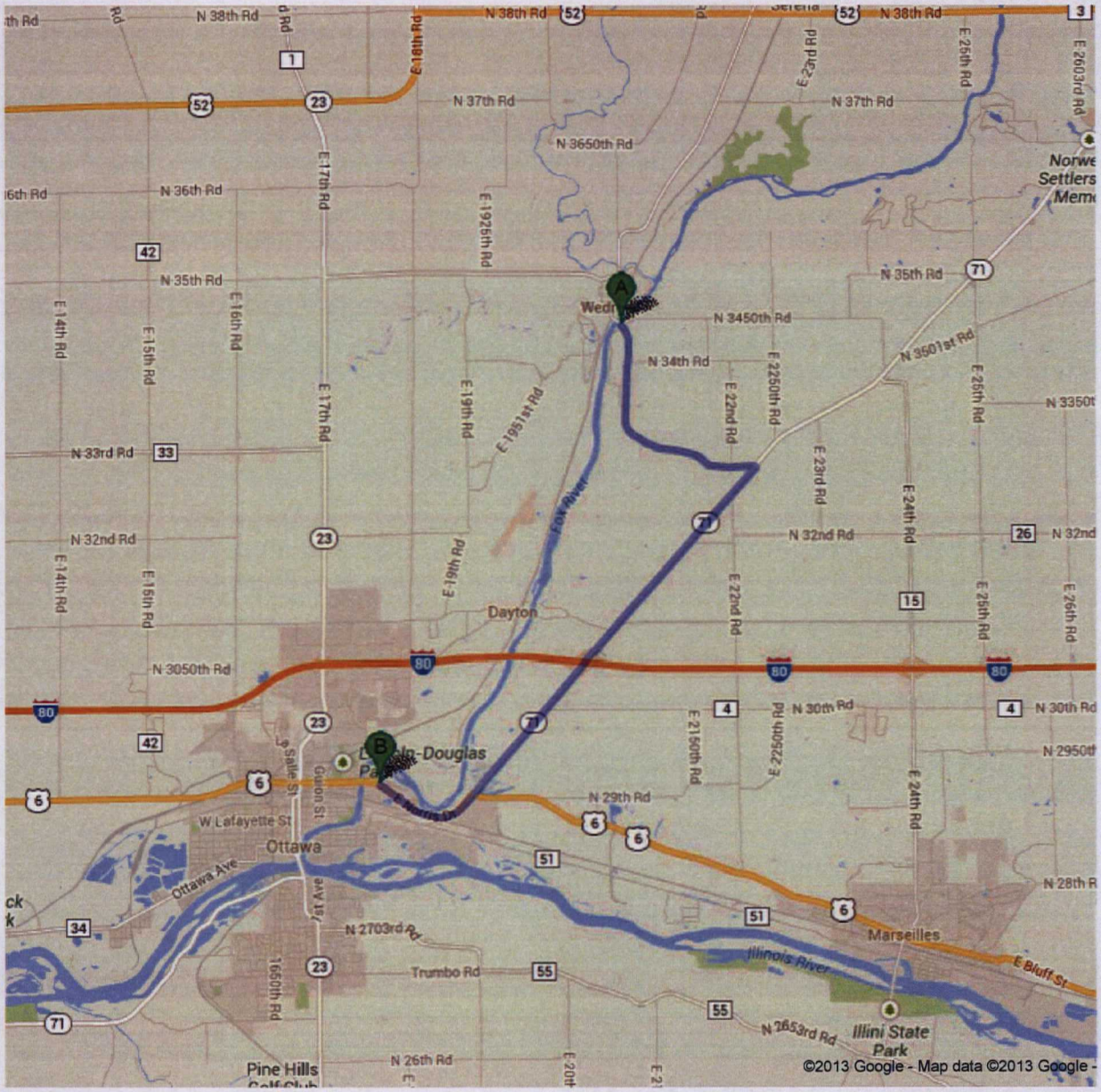
x = OK
NA = Not Applicable

Attachment C - Map to Hospital

Google

Directions to 1100 E Norris Dr, Ottawa, IL 61350
9.1 mi – about **14 mins**

Telephone No. 815-433-3100



E 2153rd Rd

1. Head **southeast** on **E 2153rd Rd** toward **N 3450th Rd** — go 2.8 mi
   About 4 mins — total 2.8 mi

2. Turn right onto IL-71 W — go 6.3 mi
   Destination will be on the right — total 9.1 mi
   About 10 mins

1100 E Norris Dr, Ottawa, IL 61350

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Attachment D - Task Hazard Analysis

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS		
GZA Job Tasks	**Potential Hazards**	**Controls**
Review Related THA's – 21.1 – General Outdoor Field Work		
Observation of Deploying of Traffic Protection Equipment by Drilling Contractor (e.g., cones, signs, etc.)	Personal injury due to vehicle traffic, Collisions, injuries	Wear high visibility vest at all times when out of vehicle.
		Park in designated parking locations or select off-road areas that are firm and free of hazards. Directly inspect parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking personal or GZA vehicle and/or equipment.
		If parking outside of a designated parking area, demarcate vehicle with traffic cones or equivalent.
		Use emergency flashers or other appropriate vehicle warning system when placing equipment.
		Observe if police detail or other required traffic control system (if necessary) is in place.
		Stay within the confines of the work area and do not venture outside of the demarcated work area into traffic.
		If you observe that contractor may back into structures, vehicles, fences, etc., notify contractor immediately with pre-determined signals. Do not cross the path of the heavy equipment.
		Stand clear of moving Drill Rig.
Observation of Mobilizing Drill Rig To Job Site and positioning at borehole by Drilling Contractor	Struck by drill rig	Before drilling begins, confirm that drill rig has been parked properly and securely by the drilling contractor.
		Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times.
		Inform the driller if it is observed that the rig is being moved with the mast raised and/or tools and other equipment on the rig are not secured and can fall over and potentially hurt personnel.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
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Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
	Overhead utility	Look overhead to assess if any utilities are present and confirm with driller that they are aware of the overhead utility location and to take appropriate actions to prevent contact with the overhead utilities and to minimize any arc flash hazards. Review GZA's Electrical Safe Work Practices Program 03-3003.
Observation of drilling operations and monitoring well installations	Underground utilities	Confirm that underground utility clearance procedures have been completed in accordance with GZA Policy # 04-0301 *Responsibility for Utility Clearance of Exploration Locations* for clearing utility locations prior
	Moving machinery, rotating parts, cables, ropes, etc.	Do not wear loose fitting clothing.
		All GZA personnel working in proximity to a drill rig will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. Maintain safe distance from rotating auger, drill casing, rods and cathead at all times. Observe operations from a safe distance. Persons shall not pass under or over a moving stem or auger Check that "kill" switches are present and working. Confirm with driller that daily inspection of rig has been performed prior to commencing work and no conditions were noted with the rig that would affect its proper operation.
		Do not touch or operate or assist with any rig operations and maintenance work.
		Make eye contact with operator before approaching equipment.
		Be alert and take proper precautions regarding slippery ground surfaces and similar hazards near rotating auger.
		Do not engage the driller or helper when drill is in operation. Work out prearranged signals to get their attention before approaching them.
		Confirm prior to drilling operations that driller and helper communicate and coordinate their actions and movements.
		GZA personnel are not allowed to be on the drill rig or operate a rig.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling

Analysis By: Andrew Whitsitt	Reviewed By: Guy Dalton	Approved By: Jayanti Chatterjee , CIH
Date: October 2, 2011 Revised: June 14, 2012	Date: June 14, 2012	Date: June 26, 2012

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear steel toed boots, hardhat and side-shielding safety glasses/goggles.
	Falling objects, debris	Stand clear of stacked drill rods. If stack appears unstable inform driller.
	Noise	Wear appropriate hearing protection.
	Roadway/traffic hazards	Be alert at all times; never step outside traffic cones.
		Wear high visibility vests at all times.
		Be familiar with escape routes at each location.
		Follow project Traffic Control Plan. Be alert at all times and never step outside the traffic cones. Use a Police detail when necessary.
	Slips, trips and falls	Maintain clean and sanitary work area free of tripping/slipping hazards.
		All borings, excavations, or partially completed groundwater monitoring wells will be adequately covered and/or barricaded if left unattended for any period of time to prevent injury.
		Store any hand tools used for sampling in their proper storage location when not in use.
		Provide adequate space for each employee to work safely with sound footing.
		Do not perform work if adequate lighting is not available.
		Maintain an exit pathway away from the rig at all times.
	Cuts, bruises, shocks, lacerations, sprains and strains during tool use	When working with a driller, do not assist the drilling crew with their work.
		Use properly maintained tools; do not use damaged tools.
		Wear the proper Personal Protective Equipment based on the task being performed.
		Store and carry tools correctly.
		Use the correct tool for the job.
		Do not use electrical tools with damaged cords or other electrical components.
		Observe proper electrical safety practices. Do not use electrical tools in wet areas.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

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Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS		
GZA Job Tasks	**Potential Hazards**	**Controls**
		Coordinate activities with driller. Allow driller to open sampling equipment (i.e., split spoons, Geoprobe sleeves, etc.)
	Fire hazards	Be familiar with emergency procedures and where fire extinguishers are present on site.
		Inform GZA subcontractor if you observe improper storage of used rags and unsafe storage of flammable/combustible liquids brought on site.
		GZA and its subcontractors, suppliers and vendors shall not smoke in the work area in GZA project sites. Smoking can only be in designated smoking areas away from work areas and potential fire hazard locations.
		Confirm with driller that a fire extinguisher present with rig and will be available at all times and that inspection tag is not expired.
		If driller is welding or cutting on site confirm there are no flammables or combustible materials near the vicinity of welding machines or torches (such as debris, fuels, grass/weeds, etc.). Review Site requirements for obtaining "Hot Work Permit".
		Stand well clear of welding/cutting/burning areas.
		When drilling activities encounter the presence of gas or electric, the drill crew shall immediately curtail drilling activity, shut down the drill rig and contact the Project Manager.
	Exposure to Hazardous Substances/Chemicals	Become familiar with hazards associated with hazardous commercial products used in drilling (fuels, silica sand, grout, cement, bentonite, etc.). Review Safety Data Sheets (SDSs) for such products and participate in daily safety tailgate meetings.
		Do not handle drilling chemicals.
		Wear appropriate personal protective equipment.
		Review hazards of chemicals that may have been used or currently are being used on site.
		Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.

GZA GEOENVIRONMENTAL, INC.
JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling		
Analysis By: Andrew Whitsitt	**Reviewed By: Guy Dalton**	**Approved By: Jayanti Chatterjee , CIH**
Date: October 2, 2011 **Revised: June 14, 2012**	**Date: June 14, 2012**	**Date: June 26, 2012**

Task 4.1
DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Assess whether procedures and contingencies are in place for characterizing hazards and protecting workers by use of appropriate air monitoring, personal protective clothing and respiratory protection, as needed. If contamination is identified at the Site only personnel trained and medically qualified to work on hazardous sites will be permitted to proceed with the work.
Sampling Soil	Exposure to chemicals	Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.
		Understand potential hazards associated with handling sample collection preservatives.
		Review and have SDS available for chemicals being brought on site, including that of sample preservatives.
		Wear appropriate PPE identified in the HASP
		Wash hands before eating and drinking. Eating and drinking are prohibited in areas of soil contamination/work area.